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(56) Documents cited
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(54) **A dart flight**

(57) A dart flight has at least one hologram. Preferably the dart flight also has two dimensional pictorial information. The hologram may be an embossed hologram which is formed by laser embossing, or by embossing hot stamping foil or metalised polyester film. The hologram may also be a reflection hologram.

FIG .1

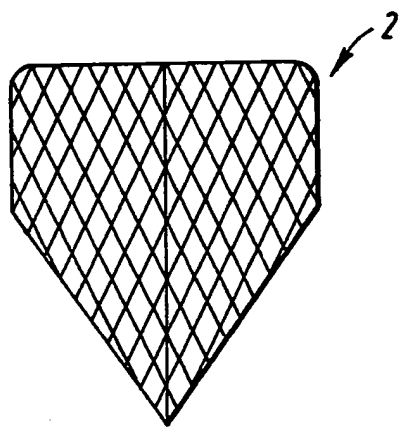
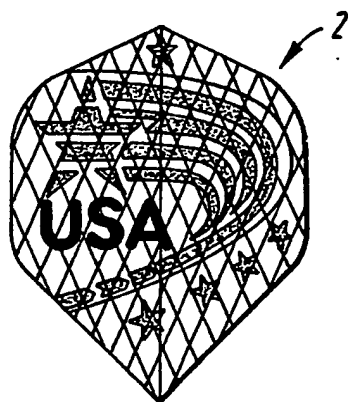


FIG .2



A DART FLIGHT

This invention relates to a dart flight.

There are very many different types of dart flights. There is always a need for a new type of dart flight, and is an aim of the present invention to provide such a dart flight.

Accordingly, this invention provides a dart flight having at least one hologram.

As is well known, a hologram can be any type of pictorial information formed such that the pictorial information appears to be three dimensional on a flat surface. The hologram pictorial information has a depth which is not attainable by two dimensional pictorial information which has hitherto been applied to dart flights. The dart flights may have any type of pictorial information as long as it is in three dimensional hologram form so that, for example, the pictorial information may be patterns, graphic images, pictures, cartoons, logos, or various combinations of these or other holograms.

The effect of a dart flight having the said at least one hologram on it is quite dramatic. The dart flight achieves a three dimensional look which is immediately noticeable. This marked aesthetic effect

will be pleasing to dart players which will in turn help to boost their confidence, which is vital in dart matches. Still further, the said at least one hologram is able to be produced on the dart flight such that the
5 dart flight is basically left with a substantially smooth surface. This avoids wind drag as may occur if the surface of the dart flight is too broken up, for example by a plurality of dimples. Thus, as a dart with the dart flight is thrown through the air towards a dart
10 board, air is able to pass over the dart flight without causing undue drag, and colours will tend to reflect from the hologram giving the above mentioned very noticeable aesthetic effect.

The hologram may be provided on an otherwise
15 plain dart flight.

Preferably, the hologram is provided on a dart flight which also has two dimensional pictorial information. The two dimensional pictorial information may be the same type of pictorial information mentioned above for the three
20 dimensional hologram. Preferably, the two dimensional pictorial information is provided on a dart flight having the hologram as a background. Existing machinery can then be employed to produce the two dimensional pictorial information, for example graphics, pictures, logos and
25 combinations, but because this two dimensional pictorial

information is provided on a dart flight having the hologram as a background, then the requirement for new machinery is kept to a minimum.

5 Where two dimensional pictorial information is provided on the dart flight having the hologram as a background, then the hologram may be pictorial information in the form of a pattern. Other types of pictorial information may however be employed if desired.

10 The hologram may be an embossed hologram. The pictorial information for the three dimensional hologram, and also the two dimensional pictorial information where it is employed, may be effected by laser embossing.

15 Usually, the dart flights will be made of a plastics material. The plastics material will usually be a polyester plastics material but other types of plastics material may be employed.

20 Where the hologram is an embossed hologram, then the embossed hologram may be produced by embossing hot stamping foil or metalised polyester film. Dart flights so produced may then have a metallic appearance.

25 The hologram may alternatively be a reflection hologram. The reflection hologram may be produced on a material similar to photographic material, or it may be produced on a thin overlay material. Such photographic material and thin overlay material is known and available.

Reflection holograms may contain a greater depth than embossed holograms, so that reflection holograms may be especially preferred for the dart flights.

5 As indicated above, each dart flight may have one or any number of holograms. The or each hologram may be in any colour or combination of colours.

Embodiments of the invention will now be described solely by way of example and with reference to the accompanying drawings in which:

10 Figure 1 shows a first dart flight; and
Figure 2 shows a second dart flight.

Referring to Figure 1, there is shown a dart flight 2 having the illustrated shape. The dart flight 2 has a hologram which is difficult to show in the drawing
15 but which is best described as a plurality of diamonds giving an overall diamond pattern for the entire dart flight 2. The diamonds in the pattern appear to change size and they reflect light as the dart flight flies through the air on the end of a dart (not shown). The
20 hologram shown in Figure 1 is provided on an otherwise plain dart flight 2 so that there is no other pictorial information on the dart flight 2 other than the diamond pattern.

25 Figure 2 shows a second dart flight 2 which is of a different shape to the dart flight 2 shown in Figure 1. The dart flight 2 shown in Figure 2 has the same diamond

hologram as in Figure 1, but it is additionally provided with two dimensional pictorial information as shown. This two dimensional pictorial information includes the letters USA, various stars and various curved portions as shown. This two dimensional pictorial information is provided on the dart flight 2 having the diamond three dimensional hologram as a background. The three dimensional diamond hologram enables the two dimensional pictorial information to be offset in such a way that the entire combination of the hologram and the 2D pictorial information achieves a depth hitherto unobtainable in dart flights. Furthermore, the light reflections from the diamond hologram illuminates different parts of the two dimensional pictorial information as the dart flight is thrown and different parts of the dart flight catch the light. Where the two dimensional pictorial information is coloured, then the colours achieve a depth and brilliance hitherto unobtainable in dart flights.

It is to be appreciated that the embodiments of the invention described above with reference to the accompanying drawings have been given by way of example only and that modifications may be effected. Thus, other

types of three dimensional holograms and/or two dimensional pictorial information may be provided on the dart flights. The dart flights may be made from diffraction foils which are embossed with patterns that diffract light, giving spectacular rainbow effects of colour. The diffraction foils can be produced as hot stamping foil or they can be produced on a variety of plastics materials. It is presently preferred that the dart flights be made of metalised polyester film but other materials may be employed.

In order to make the dart flights, the hologram may be laser embossed or otherwise provided on material from which the dart flight is to be made. The dart flight may then be provided with the two dimensional pictorial information (where this is to be employed) and the dart flight may then be made according to known methods. The hologram may be produced using shims and the shims may roll around on a rotary system in order to effect required embossing.

CLAIMS

1. A dart flight having at least one hologram.
2. A dart flight according to claim 1 in which the hologram is provided on an otherwise plain dart flight.
3. A dart flight according to claim 1 in which the hologram is provided on a dart flight which also has two dimensional pictorial information.
4. A dart flight according to claim 3 in which the two dimensional pictorial information is provided on a dart flight having the hologram as a background.
5. A dart flight according to claim 4 in which the hologram is pictorial information in the form of a pattern.
6. A dart flight according to any one of the preceding claims in which the hologram is an embossed hologram.
7. A dart flight according to claim 6 in which the embossed hologram is provided by laser embossing.

8. A dart flight according to any one of the preceding claims and which is made of a plastics material.
9. A dart flight according to claim 8 in which the plastics material is a polyester plastics material.
10. A dart flight according to claim 6 in which the embossed hologram is produced by embossing hot stamping foil or metalised polyester film.
11. A dart flight according to any one of claims 1 to 5 in which the hologram is a reflection hologram.
12. A dart flight according to claim 11 in which the reflection hologram is produced on a material similar to photographic film.
13. A dart flight according to claim 11 in which the reflection hologram is produced on a thin overlay material.
14. A dart flight having at least one hologram, substantially as herein described with reference to the accompanying drawings.